2003 Triennial Review of Water Quality Standards

Summary of Public Comments and Tennessee Water Quality Control Board (WQCB) Responses

(Note: in some instances, public comments have been summarized in order to group similar observations by multiple reviewers.)

A. GENERAL COMMENTS: Public Participation Process

Comment A-1. *The comment period for water quality standards revisions was inappropriately short. The comment period should be extended.*

Response: We believe the length of the comment period has afforded ample opportunities for public participation. The staff proposal for revisions to water quality standards was published in December 2001, well over a year ago. While not part of the formal rulemaking process, the staff proposal presented the public with an initial opportunity to comment on triennial review issues.

Following a January 2003 vote by the WQCB to initiate the rulemaking process, the department posted a copy of the proposed revisions to water quality standards on our webpage. These documents were available to be downloaded on February 1, 2003. A notice was also filed with the Secretary of State's office. Legal notices were published in newspapers and a more general public notice was sent out.

The 13 public hearings held by the Division of Water Pollution Control on behalf of the board went well beyond the public participation levels prescribed by the act. Additionally, in those cases where members of the public informed the division that they needed extra days to prepare their comments, these extra days were provided.

Comment A-2. *Staff claims that standards must be updated every three years is a misinterpretation of federal regulations.*

Response: We began this Triennial Review in 2001, so we have already been at it for over a year. In a sense, the commenter is correct, the only requirement is that we initiate the process every three years. Nothing would keep Tennessee from taking three years each time to complete the process. However, we believe that the public expects us to complete a thorough and timely review of and revisions to the standards.

Comment A-3. *Individual NPDES dischargers should have been directly notified concerning the revisions to water quality standards.*

Response: We did not directly send notice to all permit holders. That would amount to 2000 or so mailings. We did conduct notice as discussed in response A-1. Additionally, articles about the triennial review have appeared in newspapers and the *Environmental Law Newsletter*. Division staff have discussed the revisions at conferences and with trade groups. The 2002 versions of the 305(b) Report and 303(d) List contain a discussion about the development of regional criteria.

The division maintains a public notice list for those entities wishing to receive individual notifications about regulation changes. Those parties were sent notice about the proposed revisions. Persons can be added to this mailing list upon request.

Comment A-4. *Citizens and the regulated community were not directly involved in the development of criteria.*

Response: The national criteria developed by EPA are subject to peer review and public participation prior to becoming final. Anyone wishing to comment or participate in the national criteria development process for individual substances may do so.

In the same way, Tennessee's triennial review is an open process in which the public and regulated community may participate. The recommendations forwarded by staff are subject to additional review. The board will consider proposals from citizens or the regulated community during the review process; anyone has an opportunity to present their case.

Comment A-5. *The rules should allow citizens the right to appeal permits.*

Response: Revision of the Water Quality Control Act would be necessary to enact such a change. Even if the act were revised, such a provision would be better placed in the NPDES rules (Chapter 1200-4-1) than in the water quality criteria.

B. GENERAL COMMENTS: Legal Considerations and Federal Requirements

Comment B-1. *The proposed revisions to the numeric water quality criteria do not consider the economic costs to the regulated community. No cost/benefit study has been done. These revisions may put Tennesseans at a competitive disadvantage when compared with other states.*

Response: The commenter is correct that the department has not performed a cost/benefit study of the changes to the numeric criteria. However, our revisions are based on the existing national criteria that were extensively reviewed by the public. Comments about projected costs of implementation of the national criteria are an important part of that federal review process. Additionally, these national criteria are adopted by all states, not just Tennessee.

Comment B-2. *The proposed revisions have departed from the previous approach used in developing criteria revisions and should be reconsidered.*

Response: Our approach has always been to reconsider our criteria in light of the most recent science that is available. Where revisions would represent improved goal setting, the division's approach has been to recommend its adoption.

Comment B-3. *The existing criteria for the various uses appear to allow some level of "Solids, Floating Materials, and Deposits." These should not be allowed.*

Response: The goal of the criteria is to establish levels of substances or conditions that would constitute support of existing uses. Some low levels of these substances can be assimilated by a stream without causing impairment.

C. GENERAL COMMENTS: Development of Regionally-Based Criteria

Comment C-1. *The recommendations for regional criteria were based on studies of reference streams. Were the reports for these studies public noticed in order to allow the public to review them?*

Response: We did sent out public notices about the reports. These studies have been and continue to be available on our webpage at http://www.state.tn.us/environment/wpc/publications/.

Comment C-2. *The department is confusing the public by basing some things on watersheds and others things on ecoregions. The public understands watersheds, not ecoregions.*

Response: We do not concede that the ecoregion concept is difficult to understand or that there is tension between the two approaches. For the purpose of water quality goal setting, it is better to deal with homogeneous areas. The basis of the ecoregion approach has been discussed on numerous occasions with the board and is explained in multiple division publications available on our website (http://www.state.tn.us/environment/wpc/publications/).

Comment C-3. *The division has usurped the authority of the board by developing regionally-based criteria.*

Response: The division has submitted to the board some regionally-based criteria and the basis for use of these criteria. This is a recommendation, not a promulgation. The board will consider other sources of information before coming to a final decision.

Comment C-4. *These new criteria will provide third parties with additional pathways to object to permits and perhaps, pursue litigation.*

Response: It is our position than the additional clarity the proposed revisions will bring to the water quality regulation and assessment process will reduce the confusion or conflict that might arise from varying interpretations of narrative criteria.

Comment C-5. *Staff should provide all the data that were used in developing the regionally-based criteria.*

Response: Most of our ambient data, including the ecoregion reference stream data, are available in the STORET database, which can be accessed on EPA's webpage. Additionally, several of our criteria development reports (biocriteria, pH, habitat) contain the raw data used in the analyses. The nutrient and dissolved oxygen reports contain information and statistical analysis of data ranges. All of these reports can be downloaded off the department's webpage at http://www.state.tn.us/environment/wpc/publications/.

Comment C-6. *Even if the data and reports that accompany the proposed criteria revisions are available online, not everyone has access to the Internet.*

Response: We have paper copies of the reference documents for people who prefer them.

Comment C-7. *Tennessee has gone beyond EPA requirements in the development of regionally-based criteria.*

Response: The rationale for regional water quality standards is firmly established in both state and federal law. Our state law [TCA 69-3-105(a)] states, "the general assembly recognizes that due to various factors, no single standard of quality and purity is applicable to all waters of the state or to different segments of the same waters." Federal law not only allows, but also clearly encourages, the development of site-specific criteria.

Comment C-8. *Tennessee has not identified which revisions are federal requirements and those that are not.*

Response: We have explained our criteria development options to the board on numerous occasions. Additionally, these explanations were an important part of our presentations at the public hearings, to interest groups, and to citizens calling for additional information.

Comment C-9. *The proposed revisions are more stringent than EPA criteria.*

Response: The commenter did not state specifically which criteria they considered to be more stringent. However, we have not identified a single instance in which we have taken a criterion position more stringent than EPA's national criteria or guidance.

Comment C-10. *If Tennessee places regional criteria in its regulation, they will be permanent. The standards should allow for adaptive management.*

Response: Water quality standards are reviewed and updated every three years, so no provision is necessarily permanent.

Comment C-11. *The proposed revisions do not take into consideration whether existing discharges will violate these proposed regional water quality criteria.*

Response: As specified in the criteria development documents, we field-tested the criteria in streams other than reference streams. These test streams include sites downstream of dischargers at various levels of impairment. The regional criteria assessment results were generally similar to the results of previous assessment efforts.

Due to this extensive testing of the proposed criteria levels on existing data, we do not consider it likely that the incorporation of regional criteria interpretations will increase the number of water quality violations. In fact, we think that more accurate criteria are just as likely to result in fewer violations.

Comment C-12. *The reference stream approach is flawed. Using reference streams that have been impacted creates criteria that are not stringent enough.*

Response: Our desire in using the reference approach was to create regional goals that were clearly attainable. In many of our subecoregions, minimally impacted streams were readily available.

For example, four of our Outstanding National Resource Waters- the Little River, Abrams Creek, Middle Prong Little Pigeon River, and Bayou Du Chien (small tributary to Reelfoot Lake)- are also reference streams. However, as pointed out by the commenter, in some regions of the state, only altered streams were available.

Even in the subecoregions where the reference streams have been altered, they are still generally better than other streams. We continue to look for new and better reference streams. Additionally, adjacent states may also discover streams in shared ecoregions that are better than the ones in our database. If so, these new data can be incorporated.

Comment C-13. *The reference stream approach is flawed. Using reference streams that are pristine creates overly-stringent criteria that require perfection.*

Response: None of the criteria require that a stream be exactly like the reference condition in order to pass. The basis of the criteria is that test streams should have measurably similar water quality and should support similar aquatic communities.

We feel strongly that we should work towards making every stream in an ecoregion generally as good as the best streams in that ecoregion. Streams that are measurably not as good are legitimate targets for restoration. If streams should fail to meet criteria on the basis of natural conditions, the standards allow us to take that into consideration.

Comment C-14. *By requiring that streams be the same as the reference condition in order to pass criteria, goals are established that do not allow degradation.*

Response: Whether or not degradation can be allowed in a stream is a regulatory decision based on the requirements of the antidegradation provisions (1200-4-3-.06). As stated above, streams do not have to be exactly the same as reference streams in order to pass regional criteria.

Comment C-15. *It appears the division would have the authority to revise the boundaries of regions and ecoregions without board approval, thereby effectively changing the WQS applicable to specific streams.*

Response. Ecoregion boundaries correspond to and are dictated by abiotic (geology, climate) and biotic factors and have not moved since the original delineation almost ten years ago. Although unlikely, present subecoregions may be subdivided into one or more additional subecoregions, based on ongoing delineations in surrounding states. However, the criteria for any new subregions would remain consistent with the previously assigned subregion unless approved and promulgated by the board during the triennial review process.

D. GENERAL COMMENTS: Uses of Surface Waters

Comment D-1. *Tennessee should have a tiered set of criteria for aquatic life uses, so that streams that have been altered (urban streams, agricultural settings, tailwaters) would have to meet a less stringent set of criteria.*

Response: We have made some limited use of tiered criteria. For example, under the recreation use, we have proposed a tiered approach for the application of pathogen criteria.

Restoration of altered and impacted streams is an important goal of both state and federal water quality laws. For that reason, we would be reluctant to design a system that “grandfathers” previously altered streams in such a way that they no longer must meet the fish and aquatic life criteria at full strength. Under existing guidance, a Use Attainability Analysis study may be performed on a stream if the assigned uses are considered to be inappropriate.

Comment D-2. *For all named streams in 1200-4-4, the appropriate subecoregion should be indicated.*

Response: We would recommend that people use the Online Assessment Database posted on the department's homepage as the primary tool for determining which subecoregion a stream is in. Alternately, they may also contact division staff at the nearest regional office by calling 1-888-891-TDEC.

Comment D-3. *In 1200-4-4, trout streams and naturally reproducing trout streams are presented as if they are designated uses. They are not.*

Response: The commenter is correct. Trout streams and naturally reproducing trout streams are subcategories under the fish and aquatic life designated use. Presenting this information in 1200-4-4 is simply the easiest and clearest way to identify these streams.

E. GENERAL COMMENTS: Relationship of Surface Water Criteria to Ground Water

Comment E-1. *The surface water criteria do not adequately address ground water in karst settings.*

Response: The commenter is correct that the surface water criteria were generally not designed to be applied to ground water. We also recognized that streams in some areas of the state submerge underground and then reemerge later. In some of these submerged streams, especially those associated with cave systems, subterranean aquatic life can be found.

There is a state regulation that classifies and establishes criteria for ground water (1200-4-3-.07 and 1200-4-3.08). We do not have a proposal for karst systems at this time, but we will share this comment with the department's programs that deal with ground water.

Comment E-2. *Even if streams meet the fish and aquatic life criteria at the surface, irreparable damage may be done to more sensitive subterranean aquatic life if the waters contain pollutants.*

Response: The issue of whether surface water criteria are protective of the types of aquatic life that live in karst systems should be considered when ground water criteria are revisited. If EPA or U.S Fish and Wildlife Service develop national criteria for protection of subterranean life, these should be taken into account then.

Comment E-3. *The Rumble River should be evaluated as a potential Outstanding National Resource Water (ONRW).*

Response: Tennessee's Antidegradation Statement is specific to surface waters, according to 1200-4-3-.06(1).

Regarding ONRW designation, during the 1997 Triennial Review, the board placed additional requirements on future ONRW candidates [1200-4-3-.06(3)]. In general, the regulation requires the completion of a social, environmental, and economic impact study. Additionally, the opinions of local elected officials concerning the proposed ONRW designation must be gathered and presented to the board.

Division staff have not recommended any new ONRWs for this triennial review. However, the public may bring candidate streams to the attention of the board. The preliminary ground work called for in the regulation (study, opinion gathering) would have to be completed. As a practical matter, designation of additional ONWRs would be most likely as local support is demonstrated.

F. SPECIFIC COMMENTS: 1200-4-3-.02, General Considerations

Comment F-1. *The regulated community has no way to know what subecoregion their discharge point is in. The regulation should contain maps.*

Response: To provide this information in a user-friendly format, the department has posted an interactive GIS-based mapping resource on its homepage. It can be accessed at http://www.state.tn.us/environment/wpc/. At the resolution that would be available, plus the need to print in black and white, we do not believe that maps in the regulation would be helpful.

Comment F-2. *What is the source of the 80% value used for determining whether or not a stream is contained within a subecoregion.*

Response: We proposed using 80% in 1994 when we began the process to select reference streams. Some of the candidate streams had some portion of the watershed in a different subecoregion. We used it again in conjunction with the design of the original probabilistic monitoring study of subecoregion 71i. It has been accepted by EPA and seemed to be a workable basis.

Comment F-3. *There are three methods identified as being appropriate for site-specific criteria studies. The partition coefficient method should also be cited as an approved method for calculating translators.*

Response: The three approaches to metals translation referred to in this section are derived from *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion* (EPA 823-B-96-007). The use of a site-specific translator is one of the specified approaches and includes the development of translators using partition coefficients.

Comment F-4. *Must site-specific criteria study plans and results be approved by EPA?*

Response: A site-specific criteria study potentially replaces the existing criteria for a stream, which is likely based on a national criteria. Both the division and EPA review and approve study plans and results.

Comment F-5. *What guidance is being referred to in paragraph 10 about application and interpretation of narrative criteria.*

Response: This paragraph is a catch-all intended to allow the state to use new EPA guidance for application of narrative criteria, if such guidance should come out between triennial review periods.

G. SPECIFIC COMMENTS: 1200-4-3-.03(1), Criteria for Water Uses, Domestic Water Supply

Comment G-1. *Why are drinking water MCLs, especially for arsenic, adopted as surface water criteria.*

Response: These criteria only apply to waters used as public water supplies. The logic for using the MCLs in these waters is to maintain water quality at such a level that the treatment of those waters does not place an undue burden on water suppliers. Some of the substances covered under these criteria are not dependably removed by conventional water treatment techniques.

As a practical matter, most of the MCLs are at higher levels than the fish and aquatic life or recreation criteria. Thus, they are seldom the water quality standard for a substance in a stream.

Comment G-2. *EPA suggests that the domestic water supply single sample maximum criterion for E. coli be withdrawn, as it is not based on current guidance. EPA is revisiting this issue and will publish revised information.*

Response: We will do as EPA suggests and delete the single sample maximum criterion under domestic water supply. All Tennessee waters are classified for water contact recreation, thus the more protective recreational criteria will apply in these streams.

H. SPECIFIC COMMENTS: 1200-4-3-.03(3), Criteria for Water Uses, Fish and Aquatic Life

Comment H-1. *The proposed language "for surface waters" in the first line should be deleted. The department has already said that fish and aquatic life criteria do not apply to ground water.*

Response: The commenter is correct that it is the position of the department that fish and aquatic life criteria under 1200-4-3.03(3) do not apply to ground water. We prefer the language as proposed.

Comment H-2. *Trout water criteria should not be applied directly below dams.*

Response: If these streams are identified as trout waters, then the criterion appropriately applies.

Comment H-3. *Tennessee's lake/reservoir dissolved oxygen criteria are not very useful.*

Response: We do not disagree with the commenter. Our thought is that perhaps DO levels could be investigated in conjunction with research for any future attempts to develop reservoir nutrient criteria. With this approach, the division might be in a position to make a recommendation in a future triennial review.

Comment H-4. *DO levels below 6 mg/L in a trout stream should not be considered violations as long as biological integrity is maintained.*

Response: Our primary measure of biological integrity is based on benthic invertebrate surveys. Tennessee's criteria for trout streams is based on documentation that trout require higher levels of water column dissolved oxygen. Studies of benthic macroinvertebrate biological integrity would not necessarily indicate the level of stress on trout populations.

Comment H-5. *TWRA should be the designating agency for naturally reproducing trout streams.*

Response: The board assigns designated uses and does not limit the sources of information it uses to make decisions. Of course, the board has always relied heavily on TWRA's advice concerning fisheries matters.

Comment H-6. *Raising the DO criteria to 7 mg/L in subecoregion 66 (Blue Ridge Mountains) is acceptable as long as documentation that biological integrity is being maintained overrides DO criteria violations, especially in tailwaters.*

Response: We prefer the criteria as currently proposed. The commenter is correct that there are several tailwater areas below dams in ecoregion 66, including sections of the Ocoee, Hiwassee, Little Tennessee, Pigeon, and Watauga rivers. Many of these sections are already on Tennessee's list of impaired waters. It is our view that flow alteration and temperature pulsing are the most significant reasons for loss of biological integrity in these tailwaters and that most, if not all, currently meet the higher DO criteria.

Comment H-7. *In addition to trout streams, the DO criteria should also be raised in streams that provide habitat for species with special status, such as endangered darters.*

Response: We think that the antidegradation policy provides a better mechanism for protecting these streams. The presence of listed species is a significant part of what makes a stream considered "high quality" under 1200-4-3-.06(2).

Comment H-8. *The dissolved oxygen criteria should continue to recognize natural conditions such as the decomposition of leaves as a reason for violations.*

Response: We believe our proposed DO criteria for streams do incorporate natural conditions. It should be noted that our reference streams contained a substantial number of forested areas and our research did not document substantial evidence that leaves cause DO violations in streams. However, 1200-4-3-.05 (7) allows us to consider natural conditions in evaluating data.

Comment H-9. *The dissolved oxygen criteria for subecoregion 73a should not be lowered to a less protective level.*

Response: In our view, criteria must be more than just protective- they must also be appropriate. The small streams and sloughs in this area along the Mississippi River function more as wetlands than streams. The best streams we can find consistently violate the existing dissolved oxygen criteria, for reasons unrelated to pollution.

In our view, these streams naturally have lower DO levels and the forms of aquatic life found in them have adapted to these conditions. We believe the lower criterion is appropriate. However, EPA has raised objections to this approach. We will revise our proposal to reflect the DO criterion EPA has suggested for this region (average DO 5 mg/L, minimum DO level 4.0 mg/L).

Comment H-10. *The dissolved oxygen criteria for subecoregion 71i should not be lowered to a less protective level.*

Response: We think that we proposed a more protective criterion in this region. Tennessee's existing DO criteria allows division staff to have discretion to give lower emphasis to DO violations in this region, if the reason is determined to be naturally-occurring conditions.

The proposed criteria would have taken away the judgment factor and based the assessment decision on the results of an intensive biological study of the condition of the aquatic life. Additionally, the proposed language specified low flow conditions. This approach is more protective, not less protective.

However, EPA has raised objections to this approach. We will revise our proposal to reflect the DO criterion EPA has suggested for this region (daily average DO 5 mg/L, minimum DO level 4.0 mg/L).

Comment H-11. *Some of the state's conclusions about dissolved oxygen criteria for subecoregion 71i are based on data from Fall Creek. The commenter observed this site and thought it looked impacted.*

Response: Please see the response to Comment H-10. Fall Creek was not one of the original reference streams for 71i. During a different study (probabilistic), it came to our attention due to a simple fact. The biological integrity of Fall Creek was better than the reference streams we had already selected. As such, it illustrates our point that these streams should be judged by the quality of their biological communities.

However, we acknowledge that Fall Creek has very recently been subjected to a rise in nearby subdivision development. If this development affects the biological community, Fall Creek will have to be dropped as a reference stream. However, this does not disqualify data previously collected at the site.

Comment H-12. *The proposed pH criteria states that values should be "within" a range of 6.0 – 9.0. Does that mean that values of 6 or 9 are violations?*

Response: pH values of 6 or 9 are not violations. We agree with the commenter that this wording needs to be changed. We will reword so that values outside the specified ranges are violations.

Comment H-13. *The pH criteria ranges should also be lowered for lakes and reservoirs. Lakes in East Tennessee might be impacted by acid deposition.*

Response: The lakes we have assessed as impacted by pH have generally been impacted by historical mining activities. Most of our lakes are well-buffered. We are not aware of any East Tennessee lakes considered impacted by acid deposition.

Comment H-14. *The criteria table shows the correct new FAL number for pentachlorophenol, but the old formula is shown on the next page.*

Response: The commenter is correct and we will make this revision in the final version of the regulation.

Comment H-15. *There are naturally occurring organisms, such as bacteria and fungi, which cause mortality in toxicity tests. This should be reflected in the regulation.*

Response: The commenter is referring to the biomonitoring tests assigned to dischargers. This is a matter outside of the ambient water quality goal setting function of the general water quality criteria. Such a provision would be better placed in the NPDES regulation.

Comment H-16. *Many of the numeric criteria for fish and aquatic life protection are being changed. Some are going up. Raising criteria levels is not appropriate and violates the antidegradation policy.*

Response: Our approach to reviewing criteria is to see what the latest studies say about the health effects or environmental toxicity of the substances we regulate. Where new science says that the criteria should be adjusted, we should adopt that position as our recommendation. At times, the adjustment is upwards.

The rule on antibacksliding rather than antidegradation would apply. Antibacksliding says that if a facility is currently meeting a numeric permit limit, they would not get an upward adjustment simply because the in-stream criteria changes.

Comment H-17. *Since the standards were approved in 1999, a new EPA method for cyanide was added. This should be added to the footnote.*

Response: We agree and will add Method OIA-1677 to the footnote.

Comment H-18. *The proposed revisions will require that "when ambient hardness is less than 25 mg/L, the hardness dependant conversion factor should not exceed one." The regulation should be clear that Water Effect Ratio study results may be substituted.*

Response: The proposed language is in accordance with the *National Recommended Water Quality Criteria: 2002* (EPA-822-R-02-047). Section 1200-4-3-.02(9) of the proposed standards states:

> *Site-specific criteria studies may be conducted on any appropriate fish and aquatic life criteria. When the Division develops or approves site-specific criteria for any substances for which generally applicable criteria have been adopted, the site-specific criteria will supersede the adopted criteria at that location. The Division can approve a site-specific criteria developed by others provided that an approved methodology is used and that both the study plan and results are approved.*

This provision allows the use of a Water Effects Ratio (WER) procedure to provide the level of protection intended by the EPA guidelines when site-specific questions about the applicability of the hardness-toxicity relationship arise.

Comment H-19. *The narrative criterion for "Other Pollutants" is too uncertain.*

Response: This wording is intended to be one of the catch-all criterion for substances not specifically named as numeric criteria. We agree that a narrative criterion can be broad.

Comment H-20. *Federal law does not require numeric nutrient criteria.*

Response: EPA has said very clearly that they have made numeric nutrient criteria a requirement (Federal Register Volume 63, Number 122). If states fail to adopt such criteria, EPA has said that they will promulgate national guidance for that state.

However, due to the implementation issues raised concerning Tennessee's proposed numeric nutrient criteria for streams and EPA's stated concerns about Tennessee's proposed use of the 90th percentile in goal setting (instead of EPA's national guidance recommendation of the 75th percentile, a more stringent level), we will withdraw the numeric criteria for this triennial review.

We will continue to recommend a narrative nutrient criterion for fish and aquatic life protection.

Comment H-21. *The state should continue to perform research to identify what nutrient concentrations trigger harmful effects in streams.*

Response: Some additional research into this area has recently been conducted. According to unpublished data collected by USGS, correlations between nutrient levels in test streams and biological harm were strengthened when the proposed regional criteria were used to adjust nutrient data so that only excess nutrients (the amount above the regional criteria) were used as the variable in their comparison.

Additionally, continuing research in subecoregion 71i by the Division of Water Pollution Control documented strong correlations between nutrient concentrations, percent canopy cover, and biological harm.

We do not attempt to argue that nutrients function as a toxicant or that there is always a direct connection between excess nutrients and harm. However, the proposed narrative stream criteria will not be used to identify streams as impaired if biological integrity criteria have been met.

Comment H-22. *Which facilities will get nutrient limits? Will existing permits be reopened to insert nutrient limits?*

Response: Facilities will receive nutrient limits if the stream or other downstream waterbody is impacted by nutrients or organic enrichment and, the facility has reasonable potential to significantly add to nutrient loadings. Additionally, a TMDL to protect a downstream waterbody might necessitate nutrient reduction in upstream waters.

However, it is unlikely that existing permits will be reopened just to inset nutrient limits. The division would probably wait until the permit was scheduled for reissuance.

Comment H-23. *Existing wasteload allocations for nutrients should not be reduced as long as biological integrity is maintained downstream.*

Response: We agree with this statement provided that recreational uses (narrative criterion) are also maintained in downstream waters and that a TMDL has not recalculated the allocations.

Comment H-24. *Tennessee should retain the ability to assess streams as impacted by nutrients, even if the biocriteria have been met in the stream.*

Response: We are confident that if elevated nutrients are causing a problem in a stream, the biological community will reflect it.

Comment H-25. *Tennessee should develop numeric nutrient criteria for lakes and reservoirs.*

Response: We do not disagree with the commenter and note that EPA is requiring the development of nutrient criteria for all types of waterbodies. We have recommended a specific narrative criterion for recreational uses in lakes and reservoirs, which we consider to be a step in the right direction.

The proposed stream nutrient criteria are based on nearly ten years of research into reference streams. However, we are not convinced that the reference approach would prove workable in reservoirs. We have not said that we're disinterested in lake criteria, only that we are poorly situated to propose any now.

Comment H-26. *EPA does not require biocriteria and other states do not have them.*

Response: See the response to Comment H-33 for important information concerning the division's biocriteria recommendation. Based on an EPA document entitled *Summary of Biological Assessment Programs and Biocriteria Development for States, Tribes, Territories and Interstate Commissions: Wadeable Streams and Rivers* which was published in December 2002, 42 regulatory agencies (primarily states) use ecoregional reference conditions in their bioassessment/biocriteria programs. This list included all of the southeastern states.

Twenty-six states currently have either numeric biological criteria or narrative criteria with quantitative translators in their WQS including all of our neighboring states except Mississippi and Alabama. An additional 19 states are in the process of developing these numeric criteria.

Comment H-27. *The state's biocriteria proposal has not been peer reviewed.*

Response: We do not agree that this is true. In addition to the normal internal peer review, staff scientists in the Region IV state programs and at TVA reviewed our proposed biocriteria. Additionally, EPA provided funding for the review of our work by two nationally recognized biocriteria experts: Chris Yoder and Mike Barbour. Their review comments and our responses are available upon request.

See the response to Comment H-33 for important information concerning the division's biocriteria recommendation.

Comment H-28. *The state's biocriteria proposal would result in more streams being assessed as impacted.*

Response: We do not agree that this is true. The bioassessment methodology simply gives us a more objective way to assess the biological integrity of streams within a subecoregion. In our tests of potential biocriteria levels, most results reaffirmed previous assessment conclusions. In very few cases did the biocriteria lead to a different assessment for the stream and were just as likely to be raised from impacted status to "fully supporting" as not. See the response to Comment H-33 for important information concerning the Division's biocriteria recommendation.

Comment H-29. *The state's biological integrity proposal would result in more streams being identified as Tier II.*

Response: We do not agree that this is true. Again, the bioassessment procedure will simply provide an objective method for any assessment decision, including the identification of Tier II streams. See the response to Comment H-33 for important information concerning the division's biocriteria recommendation.

Comment H-30. *The reference stream data are flawed because the division combined data from multiple stream orders.*

Response. See the response to Comment H-33 for important information concerning the division's biocriteria recommendation.

One goal of the biocriteria development process was to simplify the criteria as much as possible with one index per bioregion instead of 3 or 4. The subsampling process and metrics selected for the biocriteria supported the combination of multiple stream orders for assessment purposes. We agree that larger streams may be expected to have a larger number of taxa with a greater diversity of feeding groups. However, the pollution assessment process focuses on the most common organisms in the stream rather than conducting an inventory of all taxa as would be done in a natural history survey.

By using a 200 organism subsample, the variations in taxa and EPT richness among different stream orders are reduced. There was no significant difference in these numbers between stream orders. Similarly, other types of metrics selected were not sensitive to stream orders. The functional feeding groups used as an example in the reviewer's comments were not used. Instead, the percent clingers was used as a habitat measure. This metric is sensitive to the amount of clean, sediment free substrate rather than the availability of food.

Two additional metrics were pollution tolerance indicators that are also not sensitive to stream order. The final metric, percent dominant, is independent of stream size since the prevalence of a single organism indicates a problem in any size stream. Since different taxa would be expected in different size streams, no direct comparison of taxa lists is used in the criteria.

The metrics and criteria index scores were compared between all sites in each bioregion to ensure that they would be appropriate for the specified stream orders. The reference streams and non-impaired test streams in each class regularly passed biocriteria. In bioregions where a difference was seen or where data were not available for certain size classes, the criterion was restricted to the appropriate stream sizes.

Comment H-31. *Tennessee should expand the concept of biocriteria to include other types of waters, including lakes, reservoirs, larger rivers, and wetlands.*

Response: We appreciate the endorsement of the approach, but currently lack the types and amounts of data that would be needed to make such a recommendation.

Comment H-32. *Tennessee should develop biocriteria for the other types of habitat besides the ones specified in the proposal (riffle, streambank).*

Response: Riffle and rooted bank habitats were selected for criteria development because they were available in the majority of wadeable streams in Tennessee. These 2 habitats are the most productive in their respective stream types and would be expected to have the greatest diversity of taxa. Therefore, these habitats are most likely to show effects of pollution. By limiting the types of habitat sampled, the assessment process is more cost effective, less subjective and easier to standardize.

For the few streams that do not have either a riffle or rooted bank habitat, the narrative biocriteria will still apply. It is not possible, at this time, to develop guidelines due to a lack of reference data for these atypical stream types. Tennessee has begun working with TVA and USGS to refine the narrative biocriteria for large rivers and reservoirs. Different habitats will be evaluated in these systems to determine the most productive.

Comment H-33. *Regionally-based biocriteria are a good idea, but would be more flexible if they were contained in a guidance document rather than in the regulation. Further, as additional data are collected at reference streams in Tennessee and in shared subecoregions in other nearby states, the biocriteria could be revised and updated more frequently in a guidance document than would be possible if they were contained in the regulation.*

Response: We agree with the commenter and propose to withdraw the numeric criteria in favor of continued use of a narrative criterion.

Comment H-34. *The proposed bio-diversity regulations are impossibly complex and are subjective. Given the subjectivity of the test, a member of the regulated community would not be able to have any confidence that the division in the future, or a judge, would reach the same conclusion.*

Response. The proposed methods were based on EPA's Rapid Bioassessment Method and are detailed in the Division's Macroinvertebrate Standard Operating Procedure, which is available on the Web. Sampling is standardized, thereby reducing subjectivity. The method focuses on the single most productive habitat and uses specific metrics for interpretation.

See the response to Comment H-33 for important information concerning the Division's biocriteria recommendation.

Comment H-35. *Tennessee should consider adopting TVA's fish index of biotic integrity in order to augment the proposed macroinvertebrate biocriteria.*

Response: During the ecoregion project, we did adopt TVA's approach for performing fish community studies. However, as an agency, we perform very little fish community monitoring and are generally more reliant on macrobenthic studies for assessing use support.

Comment H-36. *Tennesseans should not have to reference a different document in order to understand the biological integrity criterion.*

Response: It is common practice to have both regulations and the guidance documents that go with them. We do not think that the regulation should include the details of how to do biological or chemical sampling.

Comment H-37. *The Division has limited experience implementing biocriteria.*

Response: Some dischargers are being given permit requirements to monitor the quality of their receiving waters. Where this has been done, methods are being stipulated that will allow the proposed biocriteria to be applied.

It is not true that this requirement stems from the proposed promulgation of biocriteria. The bioassessment method simply provides an objective approach to do these studies. Failure to promulgate biocriteria will not translate into an elimination of biological monitoring requirements.

Comment H-38. *The narrative criteria for biological integrity cites the older EPA guidance document. This should be updated to the second edition of the document.*

Response: We agree and will make this revision.

Comment H-39. *The state has not proposed criteria for silt, which is currently the most frequently cited pollutant impacting Tennessee waters.*

Response: The commenter is correct that we have not proposed a numeric criterion for silt under the fish and aquatic life protection provisions. However, we proposed a new narrative criterion for habitat that will be very helpful in diagnosing stream impairment due to excessive silt. Additionally, the recreation criterion for turbidity can be applied numerically in streams similar to reference streams.

Comment H-40. *The division has stated that habitat would only be assessed if a stream does not meet biological criteria. If so, habitat should not be a separate criterion as it is simply a component of biological integrity.*

Response: We said we would not assess a stream as impacted by habitat loss if the stream meets the biocriteria. We do not agree that a specific habitat criterion is unnecessary. The Water Quality Control Act specifically identifies both a stream's natural physical characteristics and biological integrity as protected components of stream quality. Additionally, in extreme cases (culverting, concrete lining, channelization), we would certainly assess those streams as impacted by habitat alteration even in the absence of information about biological integrity.

Comment H-41. *The proposed habitat criterion appears subjective. What is meant by the statement that habitat in a test stream should be "generally similar" to reference conditions. This criterion should be deleted.*

Response: We agree with the commenter that there can be some variability between observers when rating the habitat in streams. This is one of the reasons we did not propose numerical goals for the different subecoregions. However, we do not agree that the comparison of in-stream habitat to the reference condition is subjective. Statistics can be used to test similarity.

As stated previously, habitat is a protected component of stream quality and the criterion is needed to assist in the application of the Water Quality Control Act.

I. SPECIFIC COMMENTS: 1200-4-3-.03(4), Criteria for Water Uses, Recreation

Comment I-1. *Please provide a discussion of the rationale for the change from fecal coliform as primary pathogen indicator to E. coli.*

Response: Our recommendation is based on an EPA national guidance document and is a continuation of a transition process that began during the last triennial review. The commenter is directed to the original EPA guidance document for additional explanation (EPA-823-B-02-003). We are making the recommendation because E. coli has shown to be a better indicator of true human health risk.

Comment I-2. *The state should have a tiered system for applying pathogen criteria.*

Response: That is what we have proposed for the single sample maximum criteria. See the next response for additional information.

Comment I-3. *The state has proposed a more stringent E. coli criteria for certain kinds of streams. All streams should have to meet this more stringent criteria.*

Response: The geometric mean criterion, 126 cfu per 100 ml, applies equally to all streams. It is the single sample maximum criteria that follows a tiered approach.

Our logic concerning this revision is that some bodies of water need a more stringent criteria, while others do not. Streams in which people are more likely to swim, such as lakes, reservoirs, scenic rivers, and high quality streams (Tier I & II), are places where people are more likely to engage in full immersion swimming. Thus, their risk would be greater. In other streams, this full body immersion is less likely to take place.

Comment I-4. *In applying the pathogen criteria, the state should determine the source of the pathogens before assessing the stream as impacted.*

Response: With 60,000 miles of streams and over half a million lake acres to oversee, it will not be practical for us to speciate pathogen sources prior to making a decision on use attainment. For streams identified as impacted, the TMDL process would provide a much more logical place to thoroughly investigate sources, to the extent possible.

Comment I-5. *The pathogen criteria should provide allowances for natural background levels in settings such as urban waters.*

Response: We would consider natural pathogen sources to be those caused by wild animals along unaltered stream systems. We believe the criteria already provide this flexibility.

There's no consensus that bacteria or viruses from "natural" sources are less likely to be pathogenic than those from unnatural sources. In the example cited by the commenter, urban streams, it is our view that the historical alteration of these streams and watersheds has had a pronounced effect on their ability to transport and deliver pollutants, including pathogens.

Comment I-6. *The state should eliminate the single sample maximum criteria. Very few other states have them. The proposed numbers could be used as screening guidance that would trigger more intensive studies.*

Response: We have reviewed the pathogen standards from the other Region IV states. We could not confirm the commenter's contention that other states do not use single sample maximum criterion. All of the Region IV states either have a single sample maximum criterion, or they have a requirement that only a small percentage of samples can exceed a maximum value. Direct comparisons may be misleading since some of the other Region IV states will likely have to modify their existing pathogen criteria in order to be consistent with EPA's new guidance.

Comment I-7. *The state should maintain the existing fecal coliform criteria through one more triennium to give it more time to study E. coli.*

Response: Tennessee has had E. coli pathogen criteria in 1200-4-3-.03(4)(f) since 1999. Since E. coli is considered the better measure of risk, we prefer to use it exclusively.

Comment I-8. *The criteria should allow the development of site-specific pathogen criteria studies as it does with metals.*

Response: In a site-specific criteria study for metals, aquatic life representative of the receiving stream are subjected to toxicity tests of various dilutions of a specific metal. Bioassays are run with site water and compared to controls. The results of these tests can be use to make local adjustments to the fish and aquatic life criteria.

The pathogen criteria are for the protection of human health. A strict parallel to the concept of a metals site-specific criteria study would not work here. However, we agree in concept with the commenter that epidemiological studies in Tennessee waters, similar in design to the research used by EPA to establish the national criteria, could be used to develop new criteria. However, this would not be practical for individual streams.

Comment I-9. *The state should consider developing seasonal criteria for pathogens. During the wetter seasons, streams are more likely to have runoff-related elevated pathogen levels. These are seasons when streams are less likely to have recreation uses. Winter criteria could be less stringent and fewer streams would be identified as impacted.*

Response: The commenter is probably correct that streams are less likely to be used for water contact recreation in the wintertime, however there are obvious exceptions, such as kayaking. Our ambient data collection network has historically indicated that pathogen levels are generally lower in the winter. It may be related to the more frequent summertime use of streams as lounging areas for cattle. Higher winter flows may provide more dilution.

Our proposed pathogen criteria may be overly conservative during the winter months. However, we do not currently have an approvable scientific basis for setting less stringent seasonal criteria.

Comment I-10. *Data collected in Davidson County indicate that the fraction of E. coli to fecal coliforms is higher than that assumed by EPA (63%). The criteria could be recalculated on this basis.*

Response: We understand that the fraction of E. coli to fecal coliforms may be higher than 63% in certain areas, but that doesn't argue for a different E. coli criteria. According to EPA guidance, the E. coli geometric mean criterion of 126 cfu/100 mL was measured based on epidemiological studies. The 200 cfu fecal coliform criterion was also measured, not calculated. The E. coli number was a direct output of the study, not a product of applying a ratio to the fecal coliform criterion.

Comment I-11. *The pathogen monitoring used to develop the criteria levels was based on a different type of test methodology. The current E. coli methodology provides significantly higher results.*

Response: While the commenter is correct in that EPA has published methods that are different from those used to enumerate bacterial concentrations in the epidemiological studies used to set the criteria, the newer methods yield comparable results to those previous methods. EPA has stated as much in their Federal Register notice concerning the cited methods and their use in ambient water quality monitoring (see FR vol.66, no. 169, August 30, 2001, pp. 45811-45829). Therefore, there is no reason to adjust the criteria.

Comment I-12. *Would the shift to E. coli invalidate the TMDLs Tennessee has developed for fecal coliforms.*

Response: No. The control strategies developed in the TMDL process should also control E. coli. If later studies demonstrate that the controls were inadequate for E. coli, then the TMDL can be reconsidered.

Comment I-13. *The shift to the proposed E. coli criteria levels would cause a dramatic increase in the number of pathogen violations.*

Response: We have not proposed to change the geometric mean criterion for E. coli, so the commenter's view must be that the creation of the single sample maximum criteria for E. coli will cause more violations than did the previous total fecal coliform single sample criterion. See the response to Comment I-15 for more information about the single sample maximum criterion.

Comment I-14. *The state should have an SOP document for bacteriological monitoring. This document should discourage wet weather sampling.*

Response: We are currently developing a chemical monitoring SOP document. Pathogen sampling will be included in this document. We have proposed a criteria revision to 1200-4-3-.05(5) that would recommend that wet weather pathogen data be given less weight than dry weather sampling results.

Comment I-15. *Because of the uncertainty associated with applying a single sample maximum criterion (seasonality, high flow versus low flow, natural bacteria sources & fluctuations), the criteria should utilize the flexibility provided by EPA guidance to select a different illness rate from among the ones suggested by EPA.*

Response: EPA's guidance recommends E. coli criteria derived from calculations of the levels that would cause no more than 8 illness per 1,000 persons. However, this same guidance allows a state to select criteria based on 9 or 10 illnesses, if preferred.

We agree with the commenter that there is uncertainty associated with the application of any criteria, but particularly with pathogen criteria that are indicators of risk, rather than direct measures. Some other states deal with this uncertainty by crafting their single sample maximum criteria so that no more than ten percent of the samples can exceed it.

Our existing geometric mean criterion for E. coli is 126 cfu per 100mL. Since it is more of a measure of longer term effects and subject to less uncertainty, we would not propose to change it. However, we will recommend going to the EPA suggestion based on 10 illnesses per 1,000 persons. This would change the proposed single sample maximum criteria from 298 (lakes, reservoirs, high quality streams) and 576 cfu (other waters) to 487 and 941 cfu, respectively.

Comment I-16. *Tennessee needs a numeric turbidity criteria.*

Response: Our recreational turbidity criterion in 1200-4-3-.03(4)(d) can be applied numerically in certain circumstances if the test stream can be compared to the reference stream database. These numeric interpretations of the turbidity criterion could be used as the basis for TMDLs, for example.

Due to implementation concerns, we have deleted the language that turbidity levels must not be "significantly higher than the established reference condition." However, the substituted language does not preclude an interpretation based on reference stream data, if appropriate.

Comment I-17. *How will turbidity be regulated in large streams or rivers?*

Response: In those cases, the narrative criterion refers to "objectionable appearance." In order to apply that criterion, a judgment would have to be made about what level of color or turbidity was objectionable.

Comment I-18. *The proposed revision to the color and turbidity criterion is overly complex. Can it be simplified?*

Response: We agree with the comment and will delete the proposed language in favor of a phrase that indicates that "objectionable appearance" will be judged based on the water's nature and location. We will still consider the reference stream approach to provide the preferred interpretation of this phrase in small and medium sized streams.

Comment I-19. *Tennessee should do as Georgia and Florida have done, set the numeric turbidity criteria at 25 or 30 NTU over natural background.*

Response: We do not concede that we have proposed a less usable or protective criterion. Our proposal takes advantage of our reference stream database to establish the appropriate range of values. Statistics can be used to establish the values that would be outside of these ranges.

Comment I-20. *How does the proposed turbidity criterion account for stormwater related flows?*

Response: The proposed criterion will be applied based on average levels, as it is considered more of a chronic criterion rather than an acute one. However, it should be noted that stormwater permits contain requirements to avoid episodic slugs of turbidity.

Comment I-21. *If Tennessee pursues nutrient criteria for lakes, goals based on response variables such as chlorophyll a would be more appropriate than a reference approach based on causal variables (nitrogen, phosphorus).*

Response: We are inclined to agree with the commenter. However, we are not prepared to say with certainty how we will pursue reservoir or lake nutrient criteria.

J. SPECIFIC COMMENTS: 1200-4-3-.04, Definitions

Comment J-1. *Why are terms defined in this section instead of in the context of where they are used in the regulation.*

Response: It is common for regulations to have a definitions section. This provides an easily accessible location for definitions of uncommon terms used in the regulation.

Comment J-2. *The proposed revisions contain unworkable vagueness including undefined terms such as wadeable streams.*

Response. Wadeable is generally defined as being able to use wadeable sampling techniques. In the case of biocriteria, this would be limited to sampling a 1 meter deep riffle area in streams where the SQKICK sample is specified. This would be determined during the specified sampling period (generally low flow). As specified in the WQS, the bioregions where the SQBANK sample is used (especially west Tennessee) is not limited to wadeable streams although the stream must be 80% within the bioregion.

Comment J-3. *Ecoregion and subecoregion are defined vaguely. The regulated community will be unable to decipher which subecoregion their discharge is located in.*

Response. These regions are defined in the guidance documents and can be determined for specific stream reaches using the interactive map on the state's web site. In the case of permitted discharges, the subecoregion will be specified in the permit.

Comment J-4. *The proposed change in the definition of "bypassing" makes the definition much less stringent. Unintentional bypassing will be allowed.*

Response: See response below.

Comment J-5. *The proposed change in the definition of "bypassing" makes the definition much more stringent. This will not allow diversions to "blend" effluents or to reroute effluent around unneeded treatment processes.*

Response: Because the term "bypass" is defined in other regulations and is not really integral to water quality standards, we propose to delete it altogether from this part of the rules.

Comment J-6. *The definition of degradation contains a provision for de minimus impacts. This is objectionable as no amount of degradation should be allowed in Tennessee's high quality waters.*

Response: The concept of *de minimus* degradation is needed for those occasions in which the amount of additional loading of a substance is so small that it is more theoretical, rather than measurable degradation. We are more protective than the federal interpretaton of *de minimus* (10%) in our use of 5%. Additionally, our definition prevents "creeping" degradation that might be caused by applying the concept of *de minimus* degradation multiple times in the same stream.

K. SPECIFIC COMMENTS: 1200-4-3-.05, Interpretation of Criteria

Comment K-1. *Why has the state proposed to go to a 30Q5 low flow basis for applying recreation criteria.*

Response: The 30Q5 is EPA's recommended flow basis for human health protection criteria.

Comment K-2. *Treating rain event pathogen data as outliers defeats the purpose of sampling rain events.*

Response: In certain settings, especially urban areas, rain event pathogen levels very frequently violate criteria. The reasons for this are subject to much debate. Clearly, one of the major reasons is that many urban streams have been hydrologically modified in such a manner that they are very efficient and rapid transporters of pollutants, including pathogens.

The task given the division in applying pathogen criteria is to accurately assess human health risk, given likely exposure pathways. We've no doubt that urban streams are accessed for recreation, especially by children. But are they likely to do so during rain events? The answer to that question seems less obvious.

The proposed revision to the regulation will not allow the division to disregard rain event data. It would simply give them less weight when compared to dry weather sampling results. In our view, elevated pathogen levels under normal flow conditions are a much more appropriate measure of human health risk.

L. SPECIFIC COMMENTS:
1200-4-3-.06, Tennessee Antidegradation Statement

Comment L-1. *Why is November 28, 1975 cited in the Antidegradation regulation. Why are historical uses of waters not recognized and protected.*

Response: The modern federal water quality standards program began on that date. Thus, the regulation is careful to avoid the impression that historical water uses were somehow regulated under the Act. As a practical matter, the clause has little effect on our program, since our most stringent criteria are applied to all waterbodies.

Comment L-2. *Tennessee has gone beyond EPA requirements in the development of the proposed revisions to the antidegradation policy, especially the alternative analysis concept.*

Response: At the March 2002 board meeting, the division was instructed by the board to recommend new implementation procedures in the antidegradation policy. We believe the proposed revisions are faithful to those instructions.

Alternatives analysis has been specifically added to the requirements for activities that would cause degradation in streams with assimilative capacity. Further, EPA has indicated that failure to promulgate this provision will lead to disapproval of that portion of the regulation. We see this assimilative capacity as a public property that should not be causally assigned or allotted to any specific person. Inclusion of a reasonable alternatives analysis is consistent with the planning called for in the act "for the future use of the waters so that the water resources of Tennessee might be used and enjoyed to the fullest extent consistent with the maintenance of unpolluted waters."

Comment L-3. *EPA has not required Kentucky to include the alternative analysis concept.*

Response: That is because Kentucky's regulations already contained this provision. As the commenter may be aware, EPA twice disapproved Kentucky's antidegradation policy on the basis that is was not "sufficiently inclusive." EPA has proposed a set of federal regulations to replace the disapproved Kentucky provisions.

However, Kentucky's regulation 401 KAR 5:030 section 1.(3) already required the consideration of the following alternatives for point source discharges: (1) discharge to other treatment facilities; (2) use of other discharge locations; (3) water reuse or recycling; (4) process or treatment alternatives; and (5) on-site or subsurface disposal.

Comment L-4. *The requirement for alternatives analysis will elevate every permit to the review of the board.*

Response: Only in those limited cases where the applicant or a third party seeks a review of the staff decision would the Board formally consider the matter.

Comment L-5. *The proposed revisions requiring alternatives analysis in Tier I & II waters, or the economic/social necessity requirement under Tier II will not translate well for nonpoint sources. The EPA forms are not appropriate for these type applicants.*

Response: We believe that the commenter is referring to stormwater permits or ARAP permits in this comment. Stormwater permits and many ARAP permits are general rather than individual permits. The commenter is correct that the proposed antidegradation provisions are more designed for individual permit applicants.

Regarding ARAP permits, the existing ARAP regulation requires the consideration of "feasible alternatives." The requirements of the Tier I antidegradation provisions would be satisfied by the successful completion of this analysis. For ARAP permits in Tier II streams, the board could accept formats other than the EPA workbook forms as long as it provided the necessary information about social and economic necessity.

We will add provisions to the final version of the regulation that allows the use of alternate forms or other documents that provide equivalent information for the antidegradation implementation process.

Comment L-6. *The proposed language under the Tier I protections [1200-4-3-.06 (1)] requiring alternative analysis removes the historical expectation that new or increased discharges to Tier I waters will be granted provided that the limits protect the existing uses of the stream. Third parties may view this provision as an opportunity to object to permits, or as a basis for litigation.*

Response: As stated previously, we believe that it is reasonable and appropriate to ask new or expanded dischargers to evaluate alternatives to direct discharge.

Comment L-7. *Degradation should not be allowed in any waterbody, including Tier I streams.*

Response: If there are no reasonable alternatives to discharge, it is appropriate under both state and federal rules to allow the discharge in Tier I waters, providing that existing uses are maintained.

Comment L-8. *Must streams have all four characteristics [1200-4-3-.6 (2)] in order to be high quality waters?*

Response: No, but some qualities must be exceptional. For example, the Ocoee River does not have good water quality. However, its scenic, recreational, and ecological significance is undisputed, hence its identification as a high quality water.

Comment L-9. *Streams that are sources for public water supplies should be evaluated as possible non-degradation waters and possibly be given credit towards Tier II status.*

Response: We agree with the need to protect public water supplies. The domestic water supply criteria and the generally more stringent fish and aquatic life and recreation criteria apply directly to these waters. These waters would also be Tier II waters if they have the characteristics identified in 1200-4-3-.06(2).

Comment L-10. *Streams that are reference streams should be given credit towards Tier II status.*

Response: The biological, habitat, and water quality conditions that made a waterbody a reference stream would also generally propel them to Tier II status. But the definition of high quality waters is as stated in the rules.

Comment L-11. *Tennessee appears to define Tier I waters by defining Tier II and III waters instead.*

Response: Most streams in Tennessee are Tier I. It is easier to define Tier II and III streams because they must be specifically identified.

Comment L-12. *The proposed revisions refer to preferred alternatives for "small" domestic dischargers. What are small domestic dischargers?*

Response: Generally, 50,000 gallons per day or less. Examples of businesses that might generate small flows include rural hotels, schools, or other businesses.

Comment L-13. *Land application is cited by the proposed revisions as a preferred alternative. Improper land application practices can cause water pollution.*

Response: The commenter is correct that land application can create water quality problems if the land selected is unsuitable or if wastes are incorrectly applied. We would not authorize permittees to practice land application improperly and could take enforcement action for failure to follow permit conditions.

Comment L-14. *1200-4-4-.06(1) should contain a provision in which alternative analysis is required for dischargers that have the potential to degrade an ONRW.*

Response: The Board considers it appropriate that all dischargers to high quality waters perform an alternatives analysis periodically. Degradation is not allowed in ONRWs, so alternatives analysis would only be used to help a discharger find an alternative to stream discharge. The commenter may mean dischargers upstream from an ONRW or located in a tributary, but they are not allowed to cause degradation in ONRWs either.

Comment L-15. *The Antidegradation Statement needs a companion document that would provide more additional guidance for implementation procedures.*

Response: The board agrees and has asked staff to develop such a document.

Comment L-16. *The public should be allowed to participate in the tier determination process.*

Response: When the results of the tier determination are applied to a regulatory action, the public can comment on the appropriateness of the evaluation and can present opinions concerning how the decision could have been made differently.

Comment L-17. *The section about public participation [1200-4-3-.06(3)] should be more specific about items such as how long signs are to remain in place or how many days the newspaper notice should be published.*

Response: Perhaps, but our thought is that such detailed information could be more effectively placed in a procedures or guidance document.

Comment L-18. *Many streams in Tennessee cannot be currently assessed due to a lack of water quality data. The state should not allow new permits in these streams until they can be assessed.*

Response: The procedure for making an antidegradation tier determination on a stream includes the collection of water quality data.

Comment L-19. *Existing dischargers should not be "grandfathered in" in Tier II or III waters. They should at least have to do an alternatives analysis at the time of their permit renewal.*

Response: We agree and will add this provision to 1200-4-3-.06(3)(a).

Comment L-20. *Karst stream systems should be presumed to be Tier II.*

Response: As stated previously, the Antidegradation Statement is specific to surface waters. The tier evaluation system utilized in Tennessee is based on an objective evaluation of the characteristics of the subject stream.

Comment L-21. *All Tennessee streams should be presumed to be Tier II.*

Response: The tier evaluation system utilized in Tennessee is based on an objective evaluation of the characteristics of the test stream.

Comment L-22. *In the paragraph in 1200-4-3-.06 (3) about "Information Requirements," in the third sentence a reference is made to "private system applicants." Should this have been "private sector applicants?"*

Response: The commenter is correct. We will make this revision.

Comment L-23. *Can exempted sources of pollutants on Tier II waters be required to submit a report evaluating BMP implementation efforts?*

Response: No, the exemption applies to the entire act, except as conditioned. The current program for dealing with exempted sources emphasizes voluntary efforts and incentive programs. However, we have a Memorandum of Understanding with the Tennessee Department of Agriculture concerning how to handle specific problem situations. This process has proven to be helpful in almost all cases.

Comment L-24. *The cover memo for EPA's Economic Guidance says that it "is not intended to be applied as absolute decision points." Yet Tennessee is proposing to put it into the regulation.*

Response: The goal in revising the antidegradation implementation procedures was to give some structure to the decision process. The requirement that applicants fill out certain forms in EPA guidance documents is intended as a minimum information requirement.

Comment L-25. *Why haven't staff continued to recommend the Conasauga River as an Outstanding National Resource Water (ONRW).*

Response: Staff have not changed their view that the Conasauga River is a nationally significant stream very deserving of Tier III status. During the previous triennial review, it became obvious that we were not able to develop needed support for designation. We have no reason to believe the situation has changed.

Comment L-26. *The existing language that makes the ONRW designation for the Obed River conditional should be deleted.*

Response: The conditional language the commenter refers to was integral to getting support for the Obed ONRW designation. The board has clearly established the desirability of local support for ONRW designations.

Comment L-27: *A discharger is authorized at a certain discharge volume, but has been discharging at a lower rate. The facility then decides to increase the amount of discharge up to, but not more than, the previously authorized level. Since the additional discharge would perhaps represent degradation, would an antidegradation review have to be completed?*

Response: Since an antidegradation review would have been completed at the time the discharge was originally authorized, no additional review would be needed as long as the facility was operating within permit limits.

Comment L-28: *The regulation should be modified so that general permits are exempted from antidegradation review.*

Response: The commenter is correct that some types of general permits would not trigger an antidegradation review since they do not allow degradation. One example of this type general permit might be gravel dredging, which must be done outside the stream. However, some types of general permits, including NPDES stormwater general permits, do have a potential to cause degradation. Antidegradation review would be done at the time of the issuance of the general permit. The regulation does not require antidegradation reviews where authorization for degradation is not being requested. EPA has told us that they would disapprove any type of categorical exception for general permits.

M. SPECIFIC COMMENTS: 1200-4-4, Use Classifications for Surface Waters

Comment M-1. *Why isn't Reelfoot Lake listed as a navigable waterbody.*

Response: The board could so list Reelfoot Lake if it chooses. However, the commenter should be aware that because the criteria for the navigation designated use are not very stringent, such a designation would not provide any additional water quality or regulatory protection for the lake. As a designated ONRW, Reelfoot already has the highest level of protection provided under 1200-4-3-.06.

Comment M-2. *TWRA has suggestions on changes to the identified trout streams and naturally reproducing trout streams. (Some specific comments follow.)*

Response: We consider TWRA staff to be the authorities on this matter, but note that some of the suggestions are to add named tributaries to existing trout streams. Rather than add to the length of the regulation, we would prefer to add a clause to 1200-4-3-.03(a) that states "tributaries to trout streams or naturally reproducing trout streams that are upstream of the identified segment shall also be considered trout streams or naturally reproducing trout streams unless proven otherwise. Additionally, streams within the Great Smoky Mountains National Park shall be presumed to be Naturally Reproducing Trout Streams, unless proven otherwise."

Comment M-3. *Norton Creek, a tributary to the West Prong Little Pigeon River, is a naturally reproducing trout stream and should be named in 1200-4-4-.10.*

Response: We agree and will make this revision.

Comment M-4. *Dry Fork Creek and Middle Prong Gulf Fork, tributaries to Gulf Fork Big Creek, are naturally reproducing trout streams, but are listed only as trout streams. In the same watershed, Sawmill Branch and Little Paint Creek are naturally reproducing trout streams, but are not currently listed.*

Response: We agree and will make this revision to 1200-4-4-.10.

Comment M-5. *Mill Creek, a tributary to Stony Creek, is a naturally reproducing trout stream, but is listed as only a trout stream.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-6. *Clarke Creek, a tributary to Simerly Creek, is a naturally reproducing trout stream, but is not listed.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-7. *Roaring Creek, a tributary to Doe River, is a naturally reproducing trout stream, but is listed as only a trout stream.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-8. *Little Prong Hampton Creek, a tributary to Hampton Creek, is a naturally reproducing trout stream, but is not listed.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-9. *Cove Creek, a tributary to Doe River, is listed as a trout stream, but is not.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-10. *Mill Creek, a tributary to Roan Creek, is a naturally reproducing trout stream, but is listed as only a trout stream.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-11. *Corn Creek is listed as a tributary to Roan Creek, but is actually a tributary to Goose Creek.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-12. *Little Prong Hampton Creek, a tributary to Hampton Creek, is a naturally reproducing trout stream, but is not listed.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-13. *Rockhouse Run Creek, a tributary to South Fork Holston River, is a naturally reproducing trout stream, but is listed as only a trout stream.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-14. *Chestnut Branch, a tributary to Beaverdam Creek, is a naturally reproducing trout stream, but is listed as only a trout stream.*

Response: We agree and will make this revision to 1200-4-4-.11.

Comment M-15. *In numerous places in 1200-4-4, segments of small streams are listed, with each segment having the same classified uses as the remainder of the stream. If these segments were combined into a single listing, the classified uses would not change, but 1200-4-4 would be more concise and the water quality standards regulation would be shorter.*

Response: We agree with this comment and will make this revision. The stream segmentation observed by the commenter is a holdover from historic efforts to identify the locations of municipal dischargers. However, all these streams are currently classified for recreational use and there are better ways to find the locations of municipal dischargers. As pointed out by the commenter, this revision will shorten the regulation by approximately 5 pages.